Diagnosis of chronic obstructive pulmonary disease: PFTs

Spirometry
Spirometry is the essential test to confirm the diagnosis and establish the staging of COPD. If values are abnormal, a post-bronchodilator test may be indicated. Airflow limitation that is irreversible or only partially reversible with bronchodilator is suggestive of COPD rather than asthma. A postbronchodilator ratio of FEV1/FVC <0.7 or <LLN of FEV1/FVC is used to establish the presence of airflow limitation.
In the presence of a low FEV1/FVC, the percent of predicted FEV1 is used to determine the severity of airflow limitation. GOLD 1: Mild (FEV1 ≥80 percent predicted) GOLD 2: Moderate (50 percent predicted ≤FEV1 <80 percent predicted) GOLD 3: Severe (30 percent predicted ≤FEV1 <50 percent predicted) GOLD 4: Very severe (FEV1 <30 percent predicted)
Lung volumes
Body plethysmography to assess lung volumes is not necessary except in patients with a low FVC on spirometry (<80 percent predicted) or when concomitant interstitial lung disease is suspected.
Diffusing capacity for carbon monoxide
Measurement of DLCO can help establish the presence of emphysema, but is not necessary for the routine diagnosis of COPD.
Chest radiography
Only diagnostic of severe emphysema, but is frequently obtained to exclude other lung diseases.
Arterial blood gases (ABGs)
Mild and moderate airflow obstruction - ABG usually not needed.
Moderately severe airflow obstruction - ABG is optional, but oximetry should be done. ABGs are obtained if oxygen saturation is <92 percent.
Severe and very severe airflow obstruction - ABGs are essential to assess for hypercapnia.

PFTs: pulmonary function tests; COPD: chronic obstructive pulmonary disease; FEV1: forced expiratory volume in 1 second; FVC: forced vital capacity; LLN: lower limit of normal; GOLD: Global Initiative for Chronic Obstructive Lung Disease; DLCO: diffusing capacity for carbon monoxide; ABG: arterial blood gas.

Graphic 61983 Version 2.0